Installation and Operations Guide

OLIVETTI PERSONAL COMPUTER M21

olivetti

PREFACE

This publication is directed to all users of an Olivetti Personal Computer M21. It provides the information necessary to install and start the system.

PRE-REQUISITE PUBLICATIONS: None

RELATED PUBLICATIONS:

MS-DOS Fundamental Operations Guide
Concurrent CP/M-86 Fundamental Operations Guide
UCSD p-System Fundamental Operations Guide
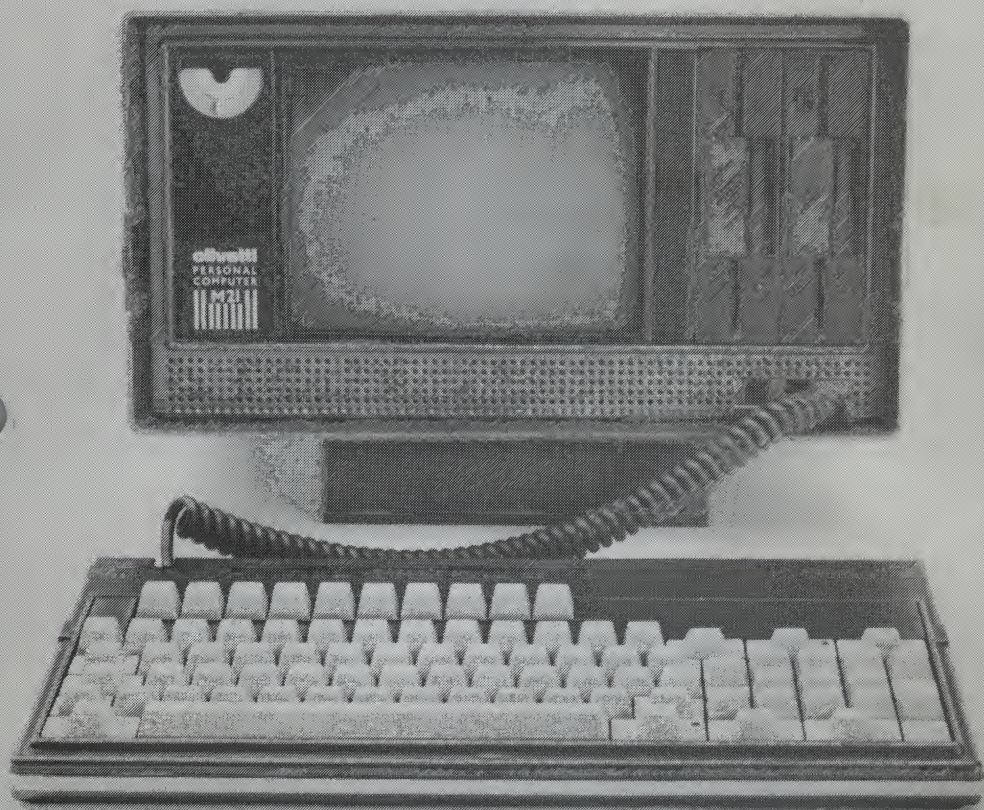
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1. INTRODUCTION

ABOUT THIS CHAPTER

This chapter offers a brief overview of the system and provides an introduction to the major components.

CONTENTS

ABOUT THE SYSTEM

The Olivetti Personal Computer M21 is a transportable computer system, designed to provide the versatility and computing power required in the modern business environment.

The Olivetti Personal Computer M21 is a complete computer system, providing the full range of hardware and software options normally associated only with desk-top personal computers. Based on the Intel 8086 microprocessor, the M21 supports the following operating systems:

• MS-DOS

• Concurrent CP/M-86

• UCSD p-System

With these operating system options, users can choose from a vast range of application software to meet their processing needs.

A comprehensive set of programming languages is also provided, for users who want to develop their own applications:

• BASIC (Interpreter and Compiler)

• COBOL

• Pascal

• FORTRAN

• C Language

• Assembler

The flexibility of the system's software is matched by its hardware. Memory capacity starts at 128K bytes and can be expanded to 640K bytes. In terms of external storage, the system offers a variety of options:

• 320/360K byte diskette(s)
• 640/720K byte diskette(s)
• 10 Mbyte hard disk unit

The system supports an integrated 9'' monochrome video, this video provides advanced graphic features with a maximum resolution of 640 x 400 pixels. If a larger screen is required, or color output is wanted, either of the M24's 12'' videos can be connected.

The keyboard is a compact, industry standard 83-key input device. A variety of national keyboard versions are supported. During transit the keyboard is attached to the front of the basic module, thus protecting the video.

A wide variety of printers is available for connection to the system, offering a range of print speeds and special characteristics.

A selection of interface boards is available including:

• Binary synchronous communication

• Serial interface

• IEEE 488

THE MAJOR COMPONENTS

Before starting to use your system, we suggest that you spend a few minutes familiarizing yourself with the major components of the system: the basic module and the keyboard.

THE BASIC MODULE

The basic module is made up of several elements, including the diskette drive(s) and the video.
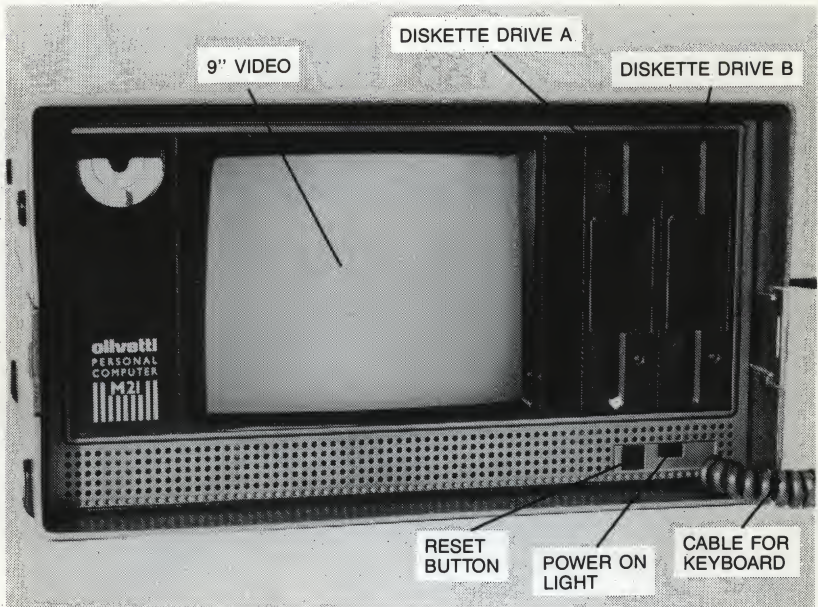
Fig. 1-1 Basic Module

The basic module is shown in Figure 1-1.

The basic module can be set at an angle by adjusting the foot on the bottom of the basic module. This feature makes it easier to read the video when the system is being used on a desk top. This feature is illustrated in Figure 1-2.

ADJUSTABLE
FOOT
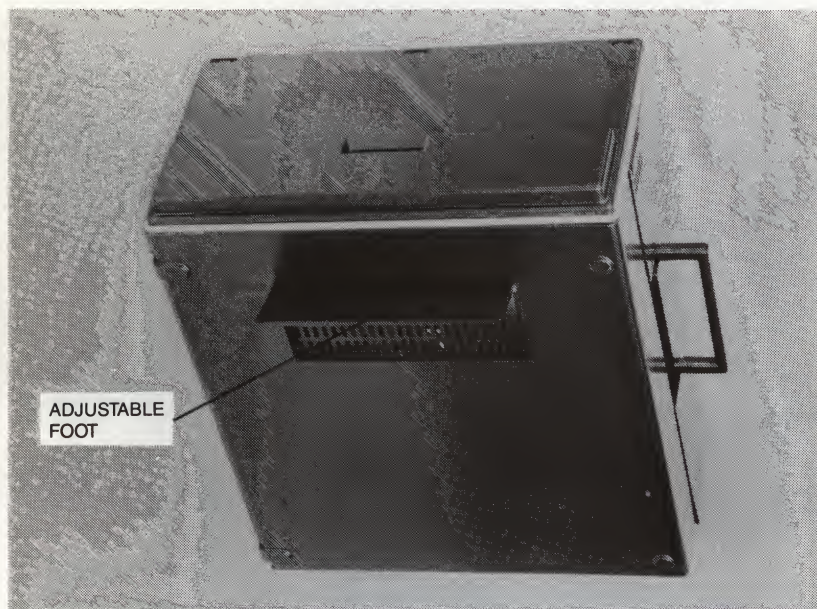
Fig. 1-2 Adjusting the Angle of the Basic Module

THE VIDEO

At the front of the basic module is the 9'' monochrome video. The brightness and contrast controls are located in the top left-hand corner of the front panel. The brightness control is colored yellow, the contrast control grey. Turning these controls clockwise increases the brightness and contrast.
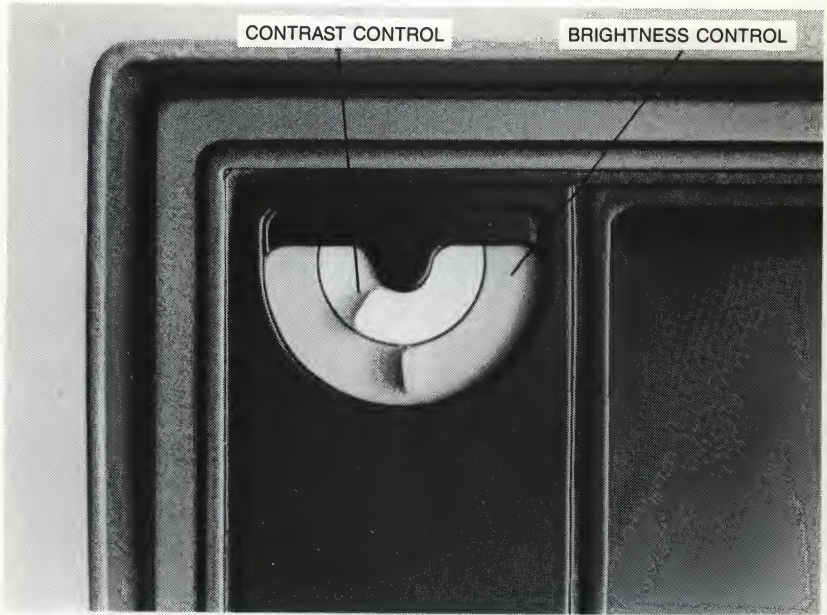
Fig. 1-3 Brightness and Contrast Controls

THE KEYBOARD

The keyboard, attached to the basic module by an extendable cable, is an industry standard, 83-key input device. The keyboard is divided into three sections:

* an alphanumeric section, almost identical to a standard typewriter keyboard

* a numeric section, to the right of the alphanumeric section, this section also contains the cursor control keys

* a row of ten function keys, located above the alphanumeric section, for use with certain application packages

Figure 1-4 illustrates the USA version of the keyboard.
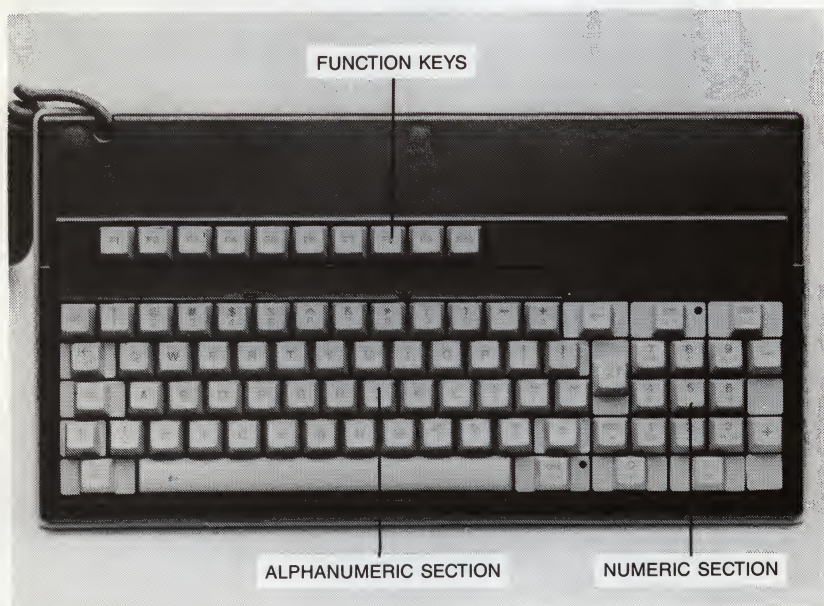
Fig. 1-4 The Keyboard

THE PRINTER

A printer is an important element of any computer system. Olivetti offer a wide range of printing devices for use with the system, some of which are listed below:

- PR 15/B dot matrix printer

- PR 17/B dot matrix printer

- PR 320/B daisy wheel, letter-quality printer

Installation and operating procedures for the printer you have chosen are contained in the operator's guide that accompanies the printer.

If you want further information about printers, please contact your Olivetti dealer.

2. INSTALLATION AND CARE
OF YOUR SYSTEM

ABOUT THIS CHAPTER

This chapter provides the information necessary for installing the system, detailing the procedures to be followed once your system has arrived.

CONTENTS

RECEIVING YOUR ORDER

The Olivetti Personal Computer M21 has been designed to perform as a free-standing, transportable computer system. It does not, therefore, require the installation procedures associated with desk top systems. However, if you have ordered optional units to be installed with your system, you should wait until your entire order has arrived. Installing a full system in one session is far easier than installing portions of a system in several sittings. Appendix B contains a checklist of all M21 components, to assist you in checking your order.

SELECTING A SITE FOR YOUR SYSTEM

Being a transportable system, the M21 is robust and will work effectively in a variety of environments; however, there are certain factors that must be considered before you choose a work-site for the system. The following paragraphs explain these factors so that you may select suitable working environments for your system:

1. The SYSTEM SHOULD BE CONNECTED TO A GROUNDED (EARTHED) POWER OUTLET. Non-grounded machines do not work properly and can be a safety hazard. If the system is not connected to a grounded circuit, the following problems may occur:

   a) abnormal program execution

   b) unreadable diskettes and disks

   c) expensive machine damage

2. The system should be isolated from sources of electrical noise and from devices that can cause excessive voltage variations. Some common sources of electrical noise are:

   a) air conditioners, fans, and large blowers

   b) transformers and alternators

   c) large electrical motors such as those used in elevators

   d) radio and TV transmitters, signal generators, and high-frequency security devices.

3. The system should be placed in a relatively dust-free place. Air-borne dust, dirt, and smoke can cause excessive wear on moving surfaces, as well as causing read/write errors.

4. The system is cooled by a fan, with inlets around the base of the basic module (see Figure 2-1). This area must be kept clear of papers or other materials that would obstruct airflow.
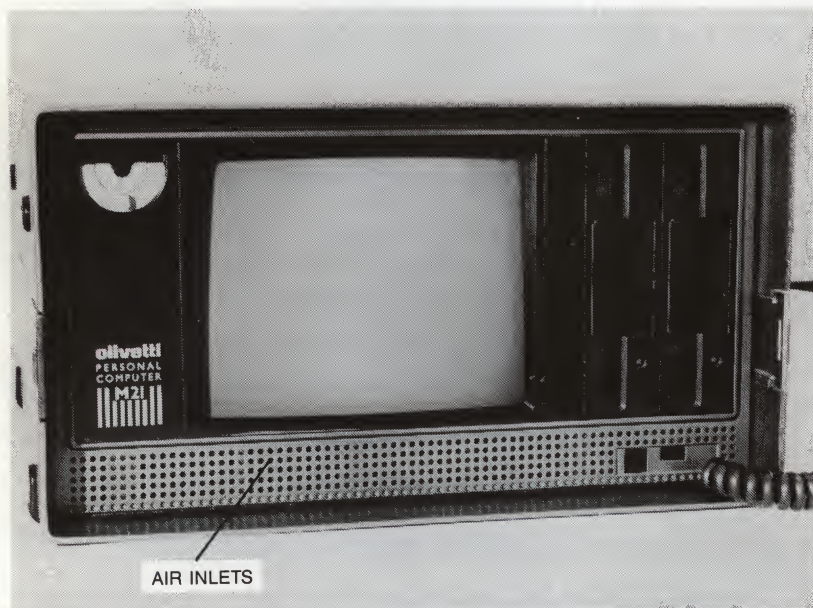
Fig. 2-1 Air Inlets

5. The system should be placed on a level surface, such as a desk top.

UNPACKING YOUR SYSTEM

The system is packed in shaped polystyrene shells before being plac-
ed in the shipping carton. To unpack your system, simply open the ship-
ping carton, remove the top polystyrene shell, and lift out the system.
As you will see the system is packed in its transportable form, with the
keyboard attached to the front of the basic module, as shown in
Figure 2-2.
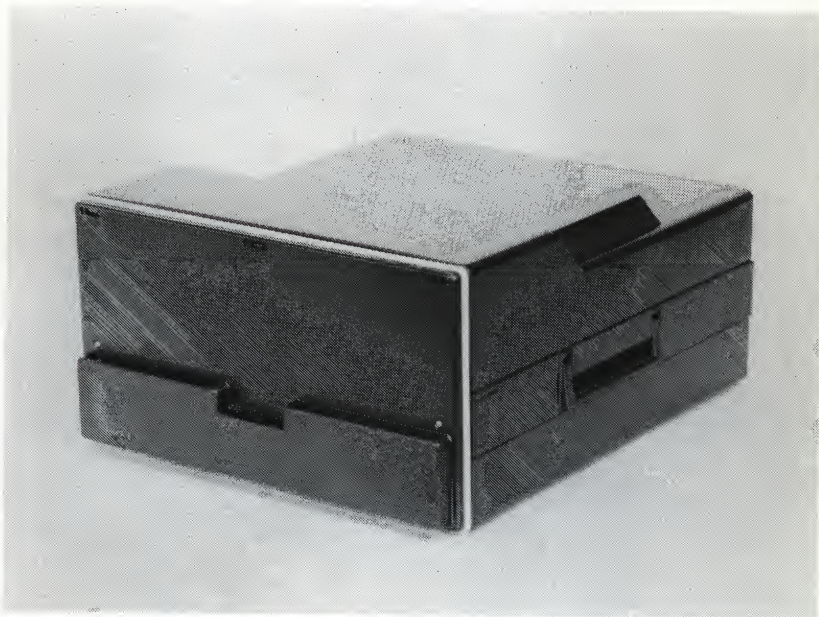
Fig. 2-2 M21 in Transportable Form

INSTALLING YOUR SYSTEM

Detach the keyboard from the front of the basic module by pressing the two keyboard securing clips inwards, and lifting the keyboard away from the basic module. Place the keyboard in front of the basic module.

At the rear of the basic module you will find a door, as illustrated in Figure 2-3.
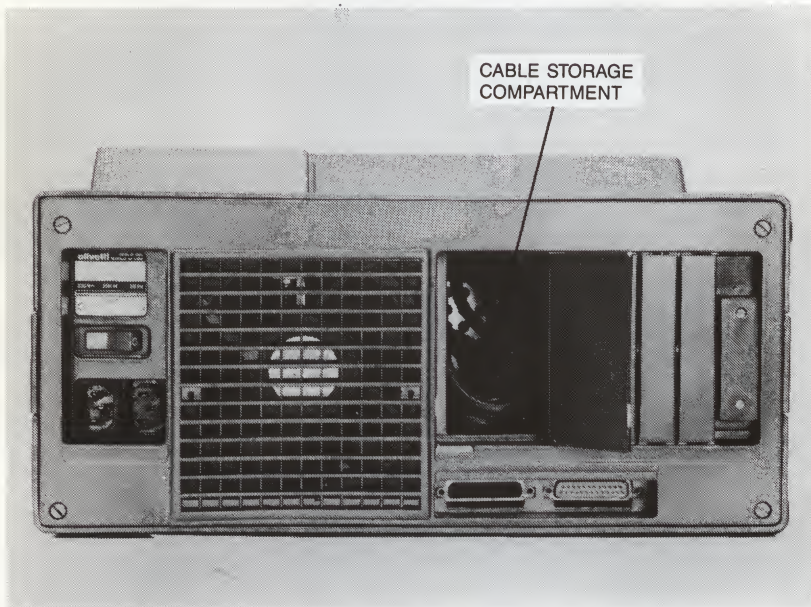
Fig. 2-3 Cable Storage Compartment

Open this door, inside you will find the power cable used to connect the system to the power supply. When you are moving your system from one location to another, you should store the power cable in the cable storage compartment.

ADDING OPTIONAL MODULES

Before connecting your system to the power supply, you should install any optional modules contained in your order. Please refer to the installation reference booklets that accompany each module. The installation reference booklets can be inserted in Appendix A of this manual.

THE BACK PANEL

All external optional modules, such as printers, are connected through one of the sockets on the back panel. Each socket provides a different interface connection, as shown in Figure 2-4.
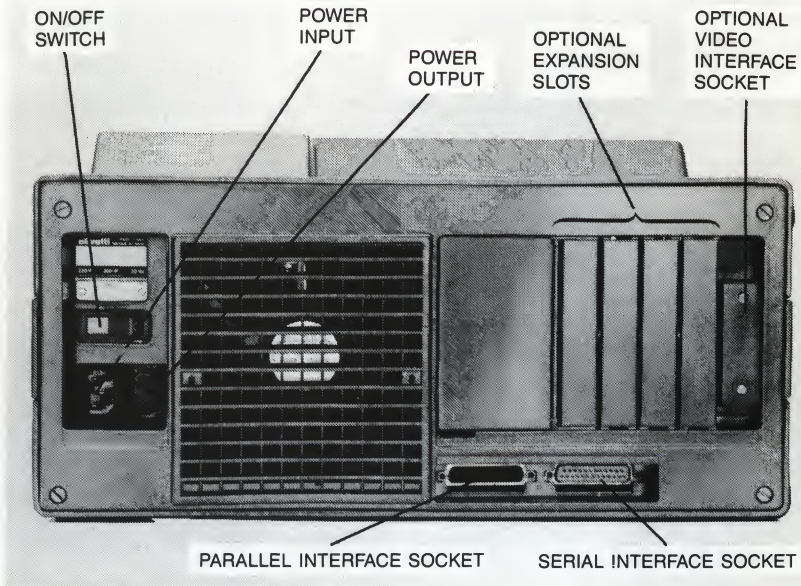
Fig. 2-4 The Back Panel

CONNECTING A PRINTER

Each printer has an operator's guide that explains how to unpack and connect it. The guide also contains instructions for the setting of necessary switches.

Having connected a printer, we suggest you place the operator's guide in this manual. This manual will then become the complete guide for your system.

DISKETTE DRIVE PROTECTION CARDS

Open the diskette drive door(s), by pulling the door(s) outwards, and remove the diskette drive protection card(s). Diskette drive protection cards protect drives from damage while the system is in transit.

CONNECTING THE SYSTEM TO A POWER OUTLET

Before doing anything else, ENSURE THAT THE VOLTAGE AND FREQUENCY OF THE POWER SUPPLY ARE THE SAME AS THOSE SPECIFIED ON THE STICKER AFFIXED TO THE BACK PANEL OF THE SYSTEM.

1.   Make sure that the ON/OFF switch is in the OFF position, as shown in Figure 2-5.

Fig. 2-5 ON/OFF Switch in the OFF Position

2. Insert the female plug of the AC power cable into the power input socket on the back panel (see Figure 2-4).

3. Connect the AC power cable to the power supply you have selected.

Note: If you use an extension cable, it should be grounded (earthed).

At this point you could power on, but we suggest that you delay this for a short while. Start-up procedures are fully explained in Chapter 4, while an understanding of the concepts explained in the next chapter is vital to making the most of your system.

3. DISKETTES, DISKS, AND DRIVES

ABOUT THIS CHAPTER

This chapter explains how to handle and care for diskettes, it also pro-
vides additional information on drives and the hard disk.

CONTENTS

Now that you have assembled the various components of your system, you'll want to start working with it. Before doing so, however, you will have to know more about diskettes, disks, and drives. We'll examine these subjects here.

DISKETTES

The system make use of diskettes for the storage of information: programs, files of data, groups of related commands, texts, etc. Perhaps the most important diskette is the system diskette. This diskette contains the operating system, as well as a series of commands that allow you to perform fundamental operations with your system.

Application software is distributed on diskette. Diskettes come in different capacities; at a minimum, they can hold about 320,000 bytes of information; a byte is equivalent to a character, such as the letter **A** or the digit **3** . A diskette with the cardboard envelope in which it is stored, is shown in Figure 3-1. New diskettes generally come in cartons of ten, together with a supply of labels and write-protect stickers.
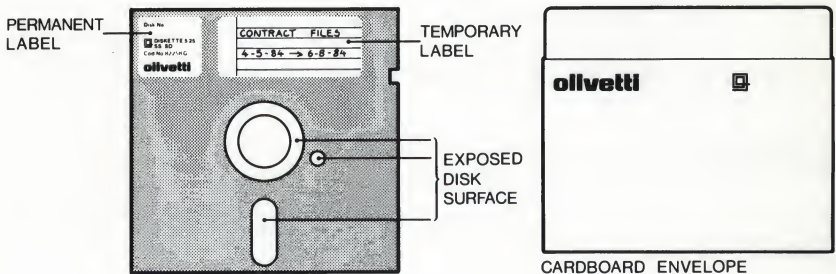
Fig. 3-1 Diskette and Envelope

CARE AND HANDLING

Although diskettes are not particularly fragile, careful handling will minimize the risk of damaging them.

- Avoid bending the diskettes. They are flexible but, if bent too far, the diskette surface will crease permanently.

- Avoid contact with the exposed diskette surface. The diskette itself is circular and made of a very thin magnetized substance. The part you handle and to which labels are attached is actually a protective cover that also keeps the diskette semi-rigid. Of necessity, some parts of the diskette are exposed. These are susceptible to scratches.

- Avoid exposing the diskettes to dust. You can do this by:

  - keeping diskettes in their cardboard envelope when not in use.

  - storing diskettes inside their carton, with the lid on.

  - keeping the diskette drive covers closed even when there are no diskettes inside. If dust is kept out of the drives, it won't get on the diskettes.

- Don't place heavy objects, such as books, on diskettes.

- Don't attach anything to diskettes with paper clips or rubber bands.

LABELS

As shown in Figure 3-1, there are two types of label attached to a diskette:

- the permanent label, affixed by the manufacturer

- the temporary label, which you affix yourself

The first is termed permanent because it is never removed. The second is termed temporary because you can peel it off whenever you need to. Here are some suggestions about labeling that can help prolong the life of your diskettes:

- Avoid writing on a temporary label that is already affixed to a diskette. If you must do so, don't use a pen or pencil with a sharp point -- which might damage the diskette surface. Use a felt-tipped pen.

- Don't stick labels on top of labels. Always peel off the old one before applying the new one. The best way to remove and apply temporary labels is with the diskette resting on a flat surface and inside its cardboard envelope.

WRITE-PROTECTION

Write-protection prevents the contents of a diskette from being altered. A write-protected diskette can only be read by the system; the system cannot write on it. This security stops you from inadvertently destroying important information stored on a diskette.

Figure 3-2 shows how to write-protect a diskette.

Peel a write-protect sticker off the sheet supplied with each new carton of diskettes, and wrap it around the write-protect notch on the edge of the diskette. That's all there is to it.
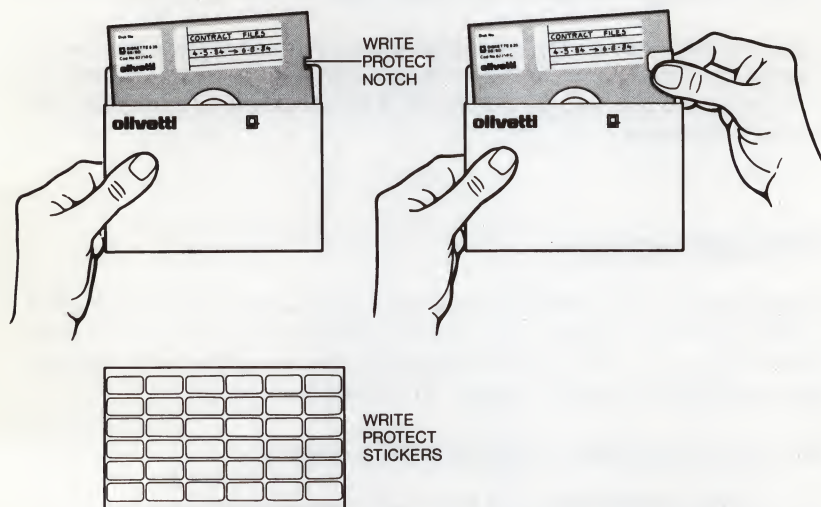
Fig. 3-2 Write-Protecting

If you want to remove write-protection, to add or change some information on the diskette, just peel off the write-protect sticker. With the sticker off, the system can write on the diskette.

Of course, there is no need to write-protect a diskette until it contains some worthwhile information. One diskette already does: the system diskette. For this reason, if it isn't write-protected already, you should protect it now.

BACKUPS

A backup is a copy of important information, kept in reserve for an emergency. You make backups by using an operating system command. Backups can be made of a whole diskette or part of a diskette. When you make a backup, remember to **always** write-protect the diskette original. Having made a backup copy, you should store the original in a safe place, and use the copy.

DISKETTE DRIVES

A diskette drive, which is protected by a drive cover, is a piece of electro-mechanical equipment that rotates a diskette. While a diskette is being rotated, the system can read from it and write to it. The following paragraphs explain how to insert a diskette into a drive and how to remove one.

INSERTING A DISKETTE

To insert a diskette into a drive, refer to Figure 3-3, and do the following:
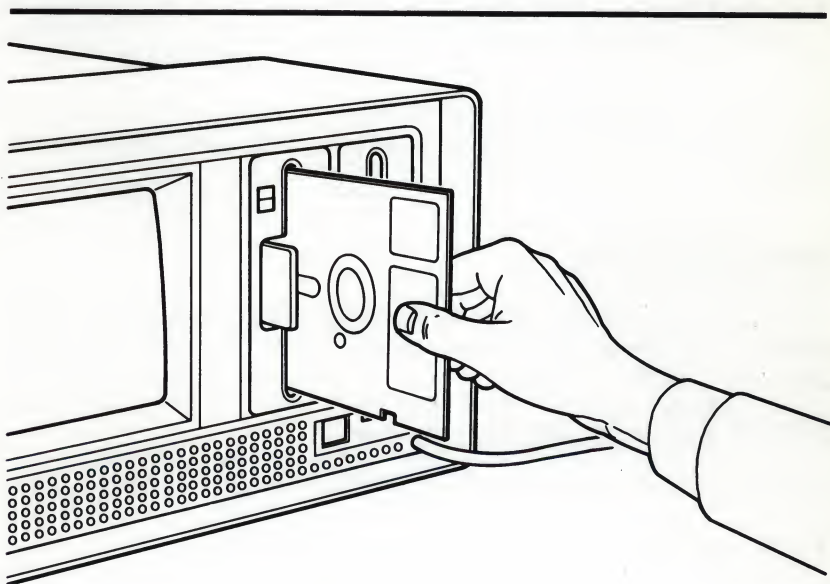
Fig. 3-3 Inserting a Diskette

1. Open the drive cover. The drive cover is opened by pulling the cover outwards.

2. Insert the diskette into the slot with its label facing toward the monitor, and towards you, as shown in Figure 3-3.

3. Push the diskette gently into the drive, until you feel it settle into position. Don't attempt to force it; if it won't go easily, withdraw the diskette and re-insert it.

4. When the diskette has settled into position, close the drive cover.

REMOVING A DISKETTE

To remove a diskette, open the drive cover. This automatically pushes the diskette out of the drive so that it can be removed.

A diskette can safely be removed with the system turned on or off. That makes no difference. It is extremely important, however, that you **NEVER** remove a diskette while it is being accessed by the system -- read from or written to. Doing so will cause, at best, an error condition; at worst, it will destroy the information on the diskette.

You can tell if a diskette is being accessed by looking at the indicator light of the drive it is in. **If its indicator light is on, don't remove the diskette**.

DRIVE IDENTIFIERS

To read information from, or write information to, a diskette you must specify the drive in which the diskette is loaded. To specify the drive, you use a "drive identifier". The form of the drive identifier depends on the operating system being used. With MS-DOS and Concurrent CP/M-86 alphabetic identifiers are used:

• The left-hand diskette drive is drive A.

• The right-hand diskette drive, if present, is drive B.

HARD DISKS

A hard disk is a mass storage device, capable of holding about ten million bytes. If your model of the system has a hard disk, it will be your primary storage medium, though you'll be able to use diskettes too.

The hard disk is fixed in place and cannot be removed. Even so, in terms of operation, the hard disk is similar to the diskette. The hard

disk is rotated by a drive allowing the system to read from it and write to it.

Information is easily transferred from diskette to hard disk and vice versa. It is usual to copy the contents of the system diskette and any application software onto the hard disk. After this is done, you can work with just the hard disk, using diskettes merely to backup important programs and files.

4. GETTING STARTED

ABOUT THIS CHAPTER

This chapter explains the use of the keyboard and provides the necessary information to begin operating the system.

CONTENTS

THE KEYBOARD

The keyboard includes the control keys used by the operating system, and:

- ten function keys for use by system or application software

- UP/DOWN page movement keys

- SCREEN PRINT key

The keyboard is illustrated in Figure 4-1.

FUNCTION KEYS

ALPHANUMERIC SECTION
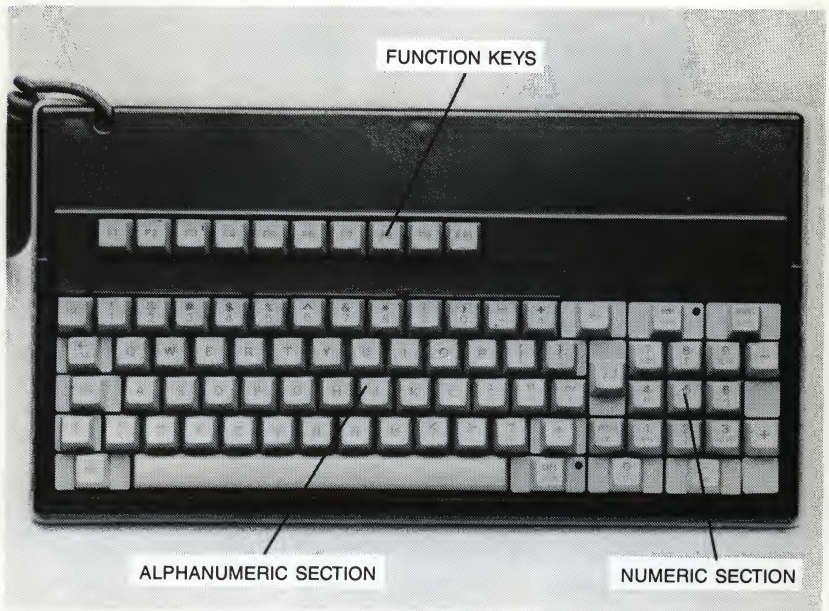
NUMERIC SECTION

Fig. 4-1 The Keyboard

A WARNING ABOUT NUMBERS

Numbers appear both in the alphanumeric section and the numeric keypad and can be keyed in from either. The system is not concerned where the numbers come from, providing that it gets a number when a number is required. (Exceptions to this general rule are documented with the applications in which such exceptions occur.)

In ordinary typing you can use a lowercase l or an uppercase I for the digit one. Similarly, you can use an alphabetic O for the digit zero.

If you do this with a computer the results are unpredictable.

Always use numeric keys for one and zero.

USING THE KEYBOARD

For the entry of text or data, the keyboard can be used as a normal typewriter, once the appropriate program has been loaded. However, when it comes to using the keyboard to communicate with the system - to tell it, for example, that you have finished entering a command - then one of the special keys has to be used. The following sections describe some of the functions performed by the special keys.

For ease of reference, this material is listed by function, rather than by key.

ENDING AN ENTRY

While you are typing on the keyboard, the information is not being transferred to the system's memory. To transfer information entered via the keyboard, to the system's memory, press the carriage return key. The carriage return key is the angled-arrow key on the right of the alphanumeric section of the keyboard. For the rest of this guide, this key will be referred to as the **CR** key.

The information to be transferred to the system's memory is called an entry. An entry can be an item of data, a program statement, or a command. Whatever the nature of the entry, the system will not act on it until the **CR** key has been pressed.

ENTERING UPPERCASE CHARACTERS

To enter uppercase characters, press either of the two vertical arrow keys while entering the characters to be set in uppercase.

From now on, within this manual, these keys will be referred to as **SHIFT** keys.

To lock the alphanumeric keyboard in uppercase mode, use the **CAPS LOCK** key. While the keyboard is locked in uppercase, a lowercase character can only be typed by pressing the **SHIFT** key with the required character key.

To return to normal keyboard mode, press **CAPS LOCK** .

MULTI-CHARACTER KEYS

On the keyboard, some keys can generate a maximum of five characters. The position of these five characters on the key is shown in the following figure:
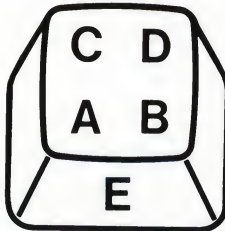
Fig. 4-2 Multi-character Key Top

To access the required character follow the rules listed below:

A - press the key (unshifted)

B - press **ALT** and the key together (unshifted)

C - press **SHIFT** and the key together

D - press **ALT SHIFT** and the key together

E - press **CTRL ALT** and the key together.

CORRECTING TYPING ERRORS

If you make a typing error and send erroneous data to the system, the system may produce unpredictable results, an error message, or do nothing at all. If you notice a typing error before the entry is completed, that is before you hit the **CR** key, you can use the backspace key to move back to the incorrect character, or characters.

The backspace key (a left-pointing arrow) is the rightmost key on the top row of the alphanumeric section of the keyboard. Any characters between the start of the backspace operation, including the character you want to change, will be deleted. Having corrected the error(s), complete the entry and press **CR** .

STOPPING A COMMAND

Sometimes you will want to stop the execution of a command before its normal conclusion, and enter another command. A common example is the stopping of a long listing of the files stored on a disk - once you have spotted the file you are searching for.

To stop the execution of a command, first press the **CTRL** key. With the **CTRL** key held down, press the **BREAK** key. When both keys are released, the execution of the command will terminate, and the system will be ready to accept another command.

AUTOMATIC REPEAT FEATURE

If a key is held down, the associated character or function is repeated for as long as the key is pressed. This feature also operates when certain key combinations are used.

The automatic repeat feature works with almost all the the keys on the keyboard, but there are a few exceptions. With certain keys, for example the **SHIFT** key, the automatic repeat feature would serve no logical purpose.

SYSTEM RESET

This feature allows you to stop all system activity, and it has an effect similar to switching the power off and back on again, but is less stressing to power supply electronics. Executing a system reset returns the system to its initial status. Any work in progress is lost when a system reset is executed, so this facility should be used with care. To reduce the possibility of accidentally executing a System Reset a three-key combination is used, and all three keys have to be pressed together.

The key combination for System Reset is **CTRL ALT DEL**.

STARTING THE SYSTEM

This section describes how to power up the system, and what the system does during the power-up sequence.

POWER UP

1. Ensure that the power switch on the rear of the system is in the OFF position.

2. Plug the basic module into the power outlet.

3. Find the video display's brightness control and, as you face the screen, turn it to full intensity, all the way to the left.

4. Remove any diskette that may have been left in a drive.

5. Push the power switch to the ON position.

AUTODIAGNOSTICS

When the system is turned on, it executes a series of tests to check that the basic components of the system are functioning correctly. This series of tests is referred to as autodiagnostics.

The time taken by these tests depends on the configuration of the system. As a general rule, the larger the memory installed in the system, the longer the tests will take to complete.

Any errors discovered during the autodiagnostics are signaled to the user, for this reason the screen brightness should be set to maximum (as described in the previous section); if the screen brightness is set to minimum, any error messages may not be visible, nor will the initial start-up screen be visible at the end of a successful autodiagnostc phase.

Nothing Appears On The Screen

If, after a couple of minutes, the screen remains blank, and you are sure that screen brightness has been properly set, there may be a problem with the display. Switch the system off, by pushing the power switch to the OFF position, wait for about a minute and push the power switch to the ON position again. If, after a minute or so, the screen remains blank, switch the system off and contact your Olivetti dealer.

AUTODIAGNOSTIC MESSAGES

During the autodiagnostic phase, the system displays a message concerning the component currently being tested. At the successful completion of each test, the word **Pass** will appear next to the component's name, for example:

CPU (i8086) Pass

If an autodiagnostic fails then the word **Fail** appears next to the component's name, for example:

DMA   Timer   Fail

HOW TO RESPOND TO AUTODIAGNOSTIC ERROR MESSAGES

Although a **Fail** message may appear, it does not necessarily mean that the system cannot be used. Some errors are transient. If a **Fail** message appears, you should execute a **Hardware Reset** .

Note: A Hardware Reset should not be confused with the system reset, described earlier. Among other differences, a system reset can only be executed once the system is working properly. That point has not yet been reached.

Hardware Reset

To execute a hardware reset press the Reset button, (see Figure 4-3) which you will find on the front of the Central Unit, at the bottom right hand corner.
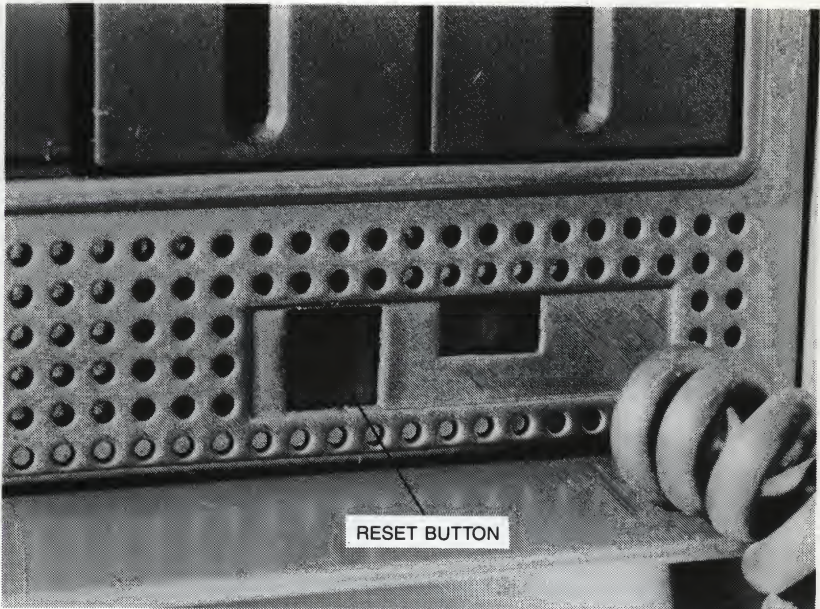
RESET BUTTON

Fig. 4-3 Reset Button

Executing a hardware reset causes the autodiagnostics to be executed again. If a **Fail** message appears again, make a note of it and contact your Olivetti dealer.

At the successful completion of the autodiagnostic phase, the system is ready to start work, and it looks for a system disk.

At the moment there is no system disk loaded, so a message is displayed.

The system is now ready to load an operating system.

The Fundamental Operations Guide, for the operating system you have chosen, serves as an introduction to that operating system. You should refer to it now for information on how to load and use the system.

A. INSTALLING OPTIONAL MODULES

INSTALLING OPTIONAL MODULES

This appendix allows you to file any installation reference booklets for optional modules.

B. HOW TO CHECK YOUR ORDER

ABOUT THIS APPENDIX

This appendix lists the mnemonic codes and random codes of the system components, together with a brief description of the component. The list will assist to check and identify the items ordered.

Before installing your system, you should ensure that your complete order has arrived. This appendix will assist you in making that determination.

A delivery label is fixed to the outside of each shipping carton you receive. Each system component contained in the carton is listed in terms of its "mnemonic description." The mnemonic description appears in the column headed MODEL, on the extreme left of the label. To obtain a full description of the component, look up its mnemonic description in Table B-1 below.

As you find each component in the Table, place a check mark next to it on your Order Form. When all items on your Order Form have been accounted for, you can begin installing your system.

Note that Table B-1 does not contain any information on printers. Printers are delivered separately and have their own installation and operating instructions. You can, therefore, install your system BEFORE your printer arrives.

MNEMONIC DESCRIPTION	RANDOM CODE	DESCRIPTION
BU 2151	48468 J	Basic module composed of: - motherboard with 128K bytes RAM - 9" monochrome integrated video - monitor controller - keyboard - power supply - controllers for diskette drive(s) and keyboard - asynchronous serial interface - parallel (Industry Standard) interface - one 320K byte diskette drive
BU 2152	48469 L	Identical to BU 2151, except that a 640K byte diskette drive is installed

▶

MNEMONIC DESCRIPTION	RANDOM CODE	DESCRIPTION
MEM 2428	48182 B	128K byte memory expansion board
EXM 2429	48169 R	128K byte memory expansion kit
MFE 2420	48170 T	320K byte diskette expansion kit
MFE 2440	48171 L	640K byte diskette expansion kit
HDU 2111	48470 W	10 megabyte hard disk module and cables
HDC 2415	48185 R	Hard disk controller and bus connector
BUS 2103	48471 P	Bus extension board
SIC 2431	48186 K	Integrated communication kit
SIC 2432	48187 M	Integrated communication extension kit
DSM 2412 V/B/A	48190 L	12" monochrome video display
DSM 2412 C	48192 F	12" color video display
EGC 2413	48193 H	Color graphics extension board

MNEMONIC DESCRIPTION	RANDOM CODE	DESCRIPTION
SIC 2482	48195 M	Twin serial interface controller board
PIC 2483	48196 P	IEEE 488 interface board
CBL 2491	48176 W	Parallel interface cable
CBL 2492	48177 Y	Serial interface cable
CBL 2493	48209 C	Current loop cable
CBL 2495	48214 J	IEEE 488 interface cable

Tab. B-1 Component Descriptions

Neither the mnemonic description nor random code appears on the optional boards. Users are strongly advised to affix labels to these boards for easy identification.

C. ADDITIONAL TESTING FACILITIES

ABOUT THIS APPENDIX

This appendix describes CUSTOMER TEST, an in-depth set of diagnostic routines that you can use to test the components of your system.

CONTENTS

INTRODUCTION

To minimize the risk of faulty components interfering with processing, the system executes a series of autodiagnostic tests when it is switched on. Despite these initial tests, hardware problems may still occur during processing. If one does, it is important to pinpoint the exact cause of the problem, a task that is not always easy. Consider the following:

A program has been written, tested, and repeatedly executed -- without problems. One day, while this program is being executed, a disk I/O error is signaled. There are many possible causes, the two most obvious being a damaged diskette or a faulty drive. If the program executes successfully when run from a backup diskette, the problem is almost surely a damaged diskette. If, however, the I/O error recurs, a faulty drive is the probable cause. Note, that this is a probability -- not a certainty.

To help isolate the cause of hardware problems, a set of diagnostic routines -- CUSTOMER TEST -- is provided with your system.

CUSTOMER TEST

CUSTOMER TEST is the name of a collection of diagnostic routines that are used to test the correct functioning of the various components of the system. The CUSTOMER TEST package is supplied on diskette with every system. The package contains routines to test the following components:

- Video Display
- Keyboard
- Motherboard
- Memory
- Disk drives (for both diskette and hard disk)
- Serial interface(s)
- Parallel interface(s)

The CUSTOMER TEST package is controlled by means of selection menus. Each of the diagnostic routines displays operating instructions (where required) on the screen; the package, therefore, is extremely easy to use.

LOADING CUSTOMER TEST

CUSTOMER TEST should be used whenever a faulty component is suspected. Messages issued by CUSTOMER TEST are self-explanatory, and the information you collect -- and can pass along -- by running the package can markedly reduce repair time.

There are two ways to load CUSTOMER TEST. If the system is powered off:

1. Insert the CUSTOMER TEST diskette in drive A.

2. Close the diskette drive door.

3. Set the power ON/OFF switch to ON.

4. When the power-up diagnostics have finished successfully, the CUSTOMER TEST diagnostics are loaded, and the main menu screen is displayed.

If the system is already on:

1. Insert the CUSTOMER TEST diskette in drive A.

2. Close the diskette drive door.

3. Press and hold down the **CTRL** and **ALT** keys, then press the **DEL** key. Release all three keys.

4. The CUSTOMER TEST diagnostics are loaded and the main menu screen is displayed.

Once loaded, CUSTOMER TEST displays a message asking you to select either Automatic or Manual mode.

AUTOMATIC MODE

In automatic mode, CUSTOMER TEST tests the installed hardware, moving from test to test automatically.

MANUAL MODE

When CUSTOMER TEST is run in manual mode, you select the individual test, or tests, to be run.

RUNNING CUSTOMER TEST

Once you have made your selection, CUSTOMER TEST displays all the information you require to run the diagnostics.

If a fault is found, a message will be displayed defining the nature of the problem. At the end of every diagnostic, a table is displayed summarizing the results of the tests.

In the event of a serious fault, you should contact your Olivetti dealer and pass on the results produced by CUSTOMER TEST.

NOTICE

Ing. C. Olivetti & C., S.p.A. reserves the right to make any changes in the product described in this manual at any time and without notice.

This manual is licensed to the Customer under the conditions contained in the User License enclosed with the Program to which the manual refers.

Warning: This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

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